

**REMARKS**

This Amendment is filed in response to the Final Office Action mailed on December 14, 2007, and is herewith filed a Request for Continuing Examination. All objections and rejections are respectfully traversed.

Claims 1-4, 6-14, and 22-25 are currently pending.

Claims 22 – 25 are added.

**Claim Rejections – 35 U.S.C. §112**

At paragraphs 2-3 of the Office Action, claim 21 was rejected under 35 U.S.C. § 112, first paragraph.

Applicant has cancelled claim 21, therefore the rejection is moot.

At paragraphs 4-5 of the Office Action, claims 1-4, 6-14, and 21 were rejected under 35 U.S.C. § 112, first paragraph.

Applicant has amended the claims to remove the cited limitation, therefore the rejection is moot.

**Claim Rejections – 35 U.S.C. §103**

At paragraphs 6-7 of the Office Action, claims 1-4, 7, 10-14, and 21 were rejected under 35 U.S.C. §103 as being unpatentable over Pflaester, US Published Application

No. 2003/0235744 hereinafter Pflaester, in view of Fuglevand et al., US Patent No.

6,030,718, hereinafter Fuglevand.

Applicant's invention as set forth in representative claim 1, comprises in part:

1. A method of fabricating a membrane electrode assembly for use in a fuel cell, comprising:

- (A) providing a mold that includes a first and second mold plate adapted to impart a desired shape to induce compression to decrease the thickness of components in the mold and to apply pressure substantially evenly across an entire active area of a membrane electrode assembly being fabricated in the mold;
- (B) providing a lead frame, including at least a first lead frame component that is adapted to be received into said mold;
- (C) assembling a protonically conductive membrane with catalyst coatings on each of its major surfaces onto said first lead frame component;
- (D) placing said lead frame containing said membrane into the mold;
- (E) compressing said second mold plate onto said first mold plate;
- (F) introducing a moldable material in communication with said mold plates; and
- (G) *allowing the moldable material to cure in said mold to solidify and form a plastic frame around said membrane to produce a membrane electrode assembly for use in a fuel cell, wherein the plastic frame holds components of the fuel cell in compression without using screws and nuts.*

By way of background, Pflaester discloses a sealing arrangement for fuel cells that includes two separator plates, membrane electrode assembly (MEA). The MEA is set back from the lateral surfaces of the cell separator plates that create a sealing gap. An elastic sealing element encloses the separator plates and a sealing strip extends into the sealing gap to form a gas-tight seal. Additionally, end plates and tie bolts hold together the stack or fuel cell. (Paragraph 0046)

Fuglevand discloses a proton exchange membrane fuel cell power system that includes a plurality of fuel cell modules. Each module includes a pair of current collectors,

with each current collector on opposite sides of the MEA.

Applicant respectfully urges that Pflaester and Fuglevand, taken alone or in combination, do not teach or suggest Applicant's claimed novel *allowing the moldable material to cure in said mold to solidify and form a plastic frame around said membrane to produce a membrane electrode assembly for use in a fuel cell, wherein the plastic frame holds components of the fuel cell in compression without using screws and nuts*. In further detail, in Applicant's claimed invention a plastic frame is formed around the membrane electrode assembly through injection molding. The plastic frame holds the components in compression without the need for screws, nuts, or bolts. The plastic frame applying the compression to the fuel cell allows for a smaller fuel cell to be produced that uses fewer pieces.

In contrast, both Pflaester and Fuglevand teach the use of fasteners to hold together the components of the fuel cell. Specifically, one of Pflaester's objects is "to provide a sealing arrangement which allows a composite of plates of a fuel cell or of a plurality of fuel cells to be reliably sealed in a gas-tight manner and permits easy replacement of a defective composite in a stack of fuel cells." (Pflaester paragraph 0010) The use of bolts and end plates further the goal because the fasteners can be removed to assist in replacing parts. Pflaester's sealing element seals the sealing gap but does not apply compression to fuel cell without the need for nuts or bolts because Pflaester teaches the use of bolts. It would not be obvious to a person skilled in the art to modify Pflaester into Applicant's invention because Pflaester teaches the sealing element does not bond completely with certain materials used to make the separator plates (ex. Graphite) and the use

of bolts in Pflaester. (Pflaester paragraph 0012).

Accordingly, Applicant respectfully urges that Pflaester and Fuglevand, taken alone or in combination, are legally insufficient to make obvious the presently claimed invention under 35 U.S.C. § 103 because of the absence of the Applicant's claimed novel *allowing the moldable material to cure in said mold to solidify and form a plastic frame around said membrane to produce a membrane electrode assembly for use in a fuel cell, wherein the plastic frame holds components of the fuel cell in compression without using screws and nuts.*

At paragraph 8 of the Office Action, claim 6 was rejected under 35 U.S.C. §103 as being unpatentable over Pflaester in view of Fuglevand, and in further view of Draper et al., US Patent No. 5,273,838, hereinafter Draper.

Claim 6 includes the limitation “*allowing the moldable material to cure in said mold to solidify and form a plastic frame around said membrane to produce a membrane electrode assembly for use in a fuel cell, wherein the plastic frame holds components of the fuel cell in compression without using screws and nuts,*” which as stated above is not taught or suggested by Pflaester and Fuglevand. Additionally, Draper does not disclose or teach a plastic frame that holds components of the fuel cell in compression without using screws and nuts.

At paragraph 9 of the Office Action, claim 8 was rejected under 35 U.S.C. §103 as being unpatentable over Pflaester in view of Fuglevand, and in further view of Montminy, US Patent Application No. 2004/0211668, hereinafter Montminy.

Applicant respectfully notes that claim 8 is a dependent claims that depends from an independent claim that is believed to be in condition for allowance. Accordingly, claim 8 is believed to be in condition for allowance.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims.

Applicant respectfully solicits favorable action

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

/Shannen C. Delaney/  
Shannen C. Delaney  
Reg. No. 51,605  
CESARI AND MCKENNA, LLP  
88 Black Falcon Avenue  
Boston, MA 02210-2414  
(617) 951-2500